

Programme

Harmonics and Stability in Power Electronic Based Power Systems

HARMONY Symposium

Wednesday, August 26th 2015

Location: Aalborg University, Fibigerstræde 16, room 1.108 , DK-9220 Aalborg East, Denmark

*Power electronic based power systems are emerging into electrical grids, such as wind and photovoltaic power plants, microgrids, flexible alternating current or direct current transmission/distribution systems, and electric railway networks. They present the superior features of controllability, sustainability, and high-efficiency, but bring in also new power quality and stability issues. **The objective** of the symposium is to establish a platform for the researchers from academia and industry to communicate the latest developments of modeling, control, and stabilizing techniques for power electronic based power systems. At first international recognized speakers will present their point of views, and afterwards results, future activities in Harmony will be discussed. The symposium is free of charge and open for stakeholders, companies and other with an interest in the field of harmonics and stability in power electronics based power systems. To register, click [here](#)*

08:00 – 09:00	Coffee, Networking and Registration
09:00 – 09:30	Welcome and Overview of Harmony Project – by Prof. Frede Blaabjerg, Principle Investigator, Aalborg University, Denmark
09:30 – 10:00	“D-Σ Digital Control for Improving Stability Margin under High Line Impedance” - by Prof. Tsai-Fu Wu, National Tsinghua University, Taiwan
10:00 – 10:30	“Harmonic Assessment in a Modern Transmission Network” – by Christian Flytkjaer Jensen, Grid Analyst, Energinet.dk, Denmark
10:30 – 11:00	Coffee Break
11:00 – 11:30	“Harmonic Challenges and Mitigation in Large Offshore Wind Power Plants” – by Lukasz Kocewiak, Senior Power System Engineer, DONG Energy, Denmark
11:30 – 12:00	“Harmonic Standards of the Present and the Future Electricity Networks” – by Firuz Zare, Lead Engineer, Danfoss Drives, Denmark
12:00 – 12:30	“Stability Analysis and Active Stabilization of DC Distribution Systems” - by Mehdi Zadeh, PhD Student, NTNU, Norway
12:30 – 13:30	Lunch

- 13:30 – 13:50** **“Harmonic Stability in Power Electronic Based Power Systems”** - by *Xiongfei Wang, Assistant Professor, Aalborg University, Denmark*
- 13:50 – 14:10** **“High-Order Passive Filters for Grid-Connected Voltage-Source Converters: Topologies and Design Challenges”** - by *Remus Beres, PhD Student, Aalborg University, Denmark*
- 14:10 – 14:30** **“Small Scale Harmonic Power System Stability”** - by *Changwoo Yoon, PhD Student, Aalborg University, Denmark*
- 14:30 – 14:50** **“Harmonic State Space Modeling in Power Electronics”** - by *Jun Bum Kwon, PhD Student, Aalborg University, Denmark*
- 14:50 – 15:10** **Coffee Break**
- 15:10 – 15:30** **“Active Damper for Stabilizing Power-Electronic Based Systems”** - by *Haofeng Bai, PhD Student, Aalborg University, Denmark*
- 15:30 – 15:50** **“Robust Active Damping Design for Grid-Current Feedback Control in Grid-Connected Converters”** - by *Zhen Xin, PhD Student, Aalborg University, Denmark*
- 15:50 – 16:10** **“A Multi-Pulse Pattern Modulation Scheme for Harmonic Mitigation in Three-Phase Multi-Motor Drives Applications”** - by *Pooya Davari, Postdoc, Aalborg University, Denmark*
- 16:10 – 17:10** **Panel Discussion and Lab Visit**
- 17:10** **End of day**

AAU-1-DAY wireless network passwords: *Will be available on the day*

Last day of registration: August 21st 2015

Link for accommodation in Aalborg: <http://www.visitaalborg.com/ln-int/accommodation-in-aalborg>

About Harmony

<http://www.harmony.et.aau.dk/>

HARMONY stands for "Harmonic Identification, mitigation and control in Power Electronics based Power Systems". The project is funded with ERC as an Advanced Grant given in 2013. The goal of HARMONY is to obtain "Harmony" between renewable energy sources, the power system and the loads in order to keep stability in all aspects seen from a harmonic point of view. The project establishes the necessary theories, models and methods to identify harmonic problems in a power electronic based power system, a theoretical and hardware platform to enable control of harmonics and mitigate them, and develops on-line methods to monitor the harmonic state of the power system. The outcomes are new tools for identifying stability problems in power electronics based power systems, new control methods for reducing the harmonic presence and reduce the overall instability risks, and new design methods for active and passive filters in renewable energy systems, in the power system and in the power electronics based loads.

We are looking forward to seeing you in Aalborg.

Best Regards,
Frede Blaabjerg
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Maps

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